Trioncinia patens A.E.Holland & D.W.Butler (Asteraceae: *Coreopsideae*: *Chrysanthellinae*), a new and endangered species from central Queensland

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Summary

Holland, A.E. & Butler, D.W. (2007). *Trioncinia patens* A.E.Holland & D.W.Butler (Asteraceae: *Coreopsideae*: *Chrysanthellinae*), a new and endangered species from central Queensland. Austrobaileya 7(3): 567–571. The new species *Trioncinia patens* is described and illustrated, together with a map of its distribution. A table is provided listing the characteristic differences between the two species of the genus, *T. patens* and *T. retroflexa*. The distribution, habitat and conservation status of *T. patens* is discussed. It is only known from three locations in and near the Peak Range National Park between Clermont and Dysart in Central Queensland where it occurs in eucalypt woodland or grassland. A conservation status of Endangered is recommended.

Key Words: Asteraceae, *Coreopsideae*, *Chrysanthellinae*, *Trioncinia patens*, *Trioncinia retroflexa*, new species, Australia, Australian flora, Queensland flora, central Queensland, Peak Range National Park, endangered species

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Introduction

Mueller (1858) first described *Glossogyne* Sect. *Trioncinia* F.Muell. based on *Glossogyne retroflexa* F.Muell. For many years this species was known only from a single specimen collected by Ferdinand Mueller at Peak Downs in 1856. Veldkamp raised the section to generic rank and made the combination *Trioncinia retroflexa* (F.Muell.) Veldkamp (Veldkamp & Kreffer 1991). *Trioncinia retroflexa* was rediscovered during intensive survey work in 1997 (Fensham 1999) and eight populations of this endangered species are now recorded. The genus *Trioncinia* (F.Muell.) Veldkamp is distinguished from other members of the subtribe *Chrysanthellinae* Ryding & K.Bremer by the cypselas which have 3 or 4 awns (Panero 2007).

The new species described here was discovered during survey work in the Dysart area, when a strange looking cypsela was found in the sock of the second author. Six individuals of this species were subsequently located growing alongside *Glossocardia bidens* (Retz.) Veldkamp and required close examination to distinguish them. This new species is currently known from only three locations in the Dysart area.

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Taxonomy

Trioncinia patens A.E.Holland & D.W.Butler, species nova a *T. retroflexa* (F.Muell.) Veldkamp cypselis minoribus (5–7 mm longis) costis transversis tenuibus ornatis, costis longitudinalibus deficientibus, aristis subaequalibus quatuor apice instructis, praecipue distinguenda; et quoque planta parva floribus radii cypselis foliisque minoribus vulgo praedita. **Typus**: Queensland. LEICHHARDT DISTRICT: Eastern Peak, 30 km W of Dysart, 8 February 2006, *D.Butler 122 & J.Ambrose* (holo: BRI).

Perennial with a thick woody taproot and several stems arising from the caudex; all parts of the plant glabrous. Stems erect, to 50 cm high, branched mainly in the upper half. Leaves mostly basal, alternate, to 7 cm long, stem leaves smaller; petioles to 4 cm long; lamina pinnatifid, sometimes further divided, up to 3 cm long and 2 cm wide; leaf segments narrow, 1–1.5 mm wide, apiculate at apex, 1-nerved. Inflorescences branched in upper half of plant, peduncles 4–12 cm long, often with 1 or 2 bracts in the upper half. Capitula 6–9 mm diameter (to 15 mm diameter in

fruit), radiate; receptacle domed, 1.6–2.4 mm diameter. Involucres hemispheric, phyllaries in 2 or 3 series; outer phyllaries few, short triangular, 1–2 mm long, 0.5–1 mm wide; middle and inner phyllaries ovate to oblong or obovate, 2.4–3.6 mm long, 0.8–1.1 mm wide, 5-veined, with a scarious margin, surface green, often glandular. Receptacular bracts linear to lanceolate, 3–4 mm long, 0.1–0.3 mm wide. Ray florets female, 5, bilobed; claw 1 mm long; lamina obovate, 1.8–2.2 mm long, 1–1.4 mm wide, bilobed at apex, yellow; 5- or 7-veined, dark brown or red. Style of ray florets 2 mm long, style arms reduced, not extended beyond the stigmatic surface. Disc florets 11–17, hermaphrodite, 2–2.5 mm long, *c.* 0.2 mm wide, dilated in upper two-thirds, with 4 or 5 triangular lobes, 2 or 3 lobes have marginal veins only, the remaining 1 or 2 also have a mid-vein; all veins joining at the apex. Anthers *c.* 0.8 mm long, without tails, anther appendix obtuse, resinous. Style of disc florets *c.* 2 mm long, style arms *c.* 1 mm long, stigmatic surface one third the length of the arms. Cypselas terete, slightly wider in the middle, slightly curved inwards at apex, 5–7 mm long, 0.7–1.0 mm diameter (the outer ones slightly shorter), surface glabrous, lacking longitudinal ribs, with thin transverse ridges, smooth between ridges, pale brown, apex with 4 awns; awns spreading more or less at right angles to each other and to the body of the cypsela, 1–2 mm long, more or less equal in length or rarely one much shorter, retrorsely barbed, orange-brown. **Fig.1.**

***Additional specimens examined*: Queensland**. Leichhardt District: East base of Browns Peak, 30 km W of Dysart, Feb 2006, *Butler 123 & Ambrose* (BRI). South Kennedy District: Western base of Mt Castor, Peak Range National Park, *c.* 40 km NE of Clermont, Jan 2001, *Butler s.n.* (BRI [AQ669884]).

***Distribution and habitat*:** *Trioncinia patens* is known from only three locations, all on the toe-slopes of peaks in and near the Peak Range National Park between Clermont and Dysart in central Queensland (**Map 1**). It occurs in eucalypt woodland (*Eucalyptus orgadophila, E. crebra, E. melanophloia* and *Corymbia erythrophloia*), on basalt-derived dark-grey to red-brown clays or clay-loams, often with some surface gravel (Regional Ecosystem 11.8.4 or 11.8.5, (Environmental Protection Agency 2007).

***Notes*:** *Trioncinia patens* superficially resembles *T. retroflexa*, but is generally a smaller plant, with smaller ray florets, cypselas and leaves. *Trioncinia patens* is most reliably distinguished by the four spreading awns of the cypsela. *Trioncinia retroflexa* usually has three awns, rarely a small fourth one, and these are always reflexed when mature. The mature cypselas of *T. patens* are transversely ridged with thin ribs that are smooth between the ridges whereas the mature cypselas of *T. retroflexa* are longitudinally ribbed with thick transverse ridges becoming rugose or warty with age (**Table 1**).

Table 1: Characteristics of *Trioncinia* species

Character	*T. patens*	*T. retroflexa*
basal leaf length	3–7 cm long	4.5–17 cm long
width of leaf segments	1–1.5 cm wide	1–3.5 cm wide
ray lamina length × width	1.8–2.2 × 1–1.4 mm	3–3.7 × 2–2.5 mm
cypsela length	5–7 mm	8–11 mm
cypsela width	0.7–1 mm	1–1.3 mm
cypsela ridges	longitudinal ribs absent; transverse ridges thin, not overlapping, and smooth between ridges	longitudinally ribbed with warty transverse ridges becoming thickened or rugose with age
cypsela awns	4, spreading, subequal	3, strongly reflexed (rarely with a small fourth one)

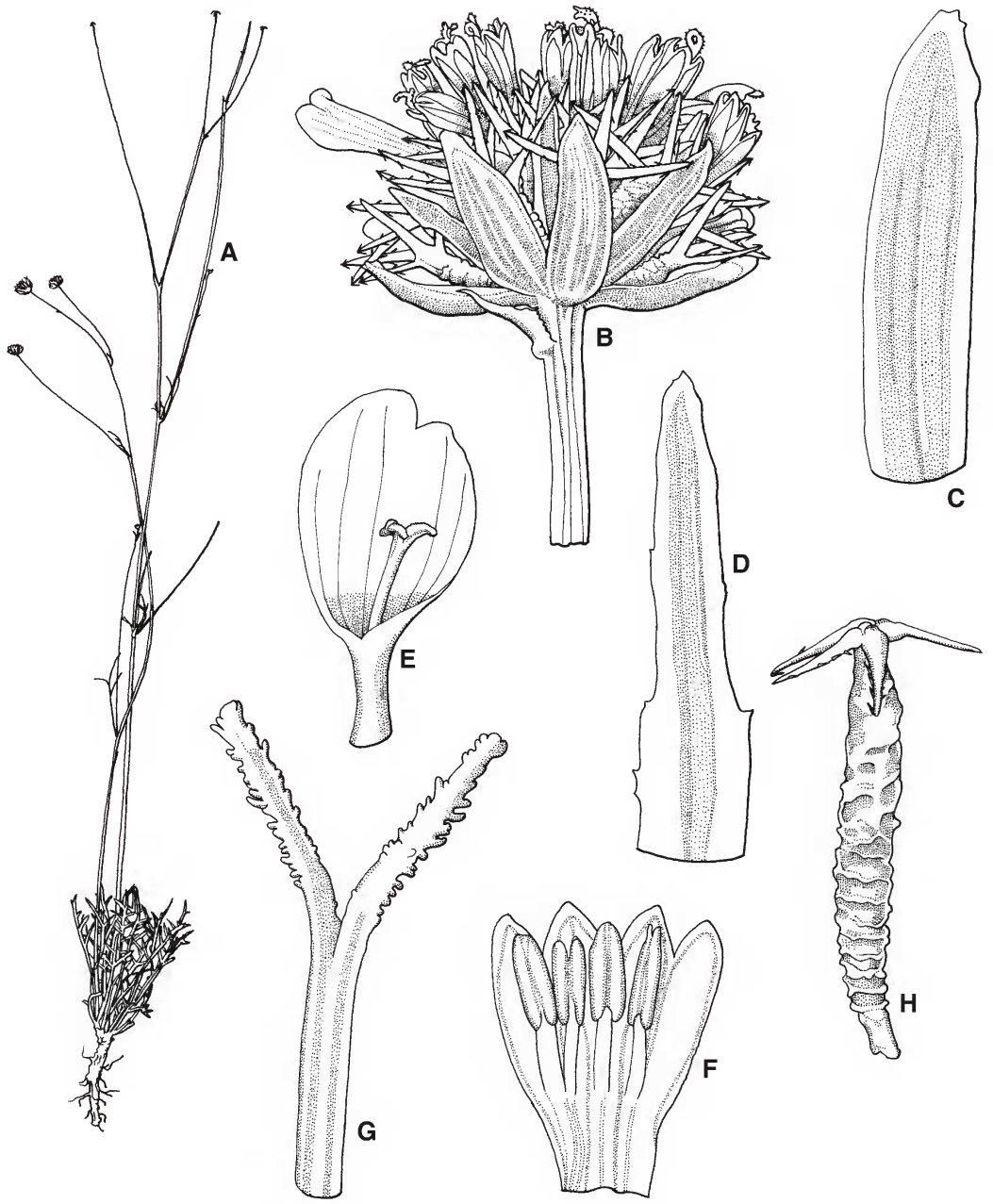

Fig. 1. ***Trioncinia patens***. A. habit × 0.3. B. capitulum × 8. C. phyllary × 16. D. receptacular bract × 16. E. ray floret × 16. F. disc floret with anthers × 16. G. style from disc floret × 32. H. cypsela × 8. A–G from *Butler 122 & Ambrose* (BRI); H from *Butler s.n.* (BRI [AQ669884]). Del. W.Smith.

The two *Trioncinia* species differ considerably in their habitat preferences. *Trioncinia retroflexa* occurs mainly in grasslands on rolling plains of heavy black clay, whereas *T. patens* occurs mainly in eucalypt woodland on the lower slopes of basalt or trachyte hills where soils are considerably lighter in texture and colour.

Some populations of *T. retroflexa* occur near woodland boundaries in grassland/woodland mosaics on higher parts of rolling basaltic plains, and one population of *T. patens* occurs in a small grassland on quite dark clay soil. However, this grassland is unlike any known *T. retroflexa* habitat. It is a patch slightly larger than 0.5 hectare, surrounded by eucalypt woodland and perched atop a broad ridge running off one of the Gemini Peaks.

***Conservation status*:** *Trioncinia patens* was found to occur in only three locations after considerable survey effort in the area. The northernmost population occurs in the Gemini section of Peak Range National Park (at the base of Mount Castor) and consists of only six individuals; the southernmost population at the base of Eastern Peak (also part of Peak Range National Park) has more than 100 individuals; the nearby population at the base of Browns Peak consists of less than 100 individuals and is not conserved. Under the IUCN criteria (IUCN 2001), *T. patens* can be categorised as "Endangered" under criterion D (population size estimated to number fewer than 250 individuals). Threats to current populations are assumed to be similar to those of *T. retroflexa*, including grazing, weed infestation and inappropriate fire regimes, although *T. retroflexa* is tolerant of spasmodic disturbance (Fensham *et al.* 2002). Monitoring of the three populations in the area is recommended.

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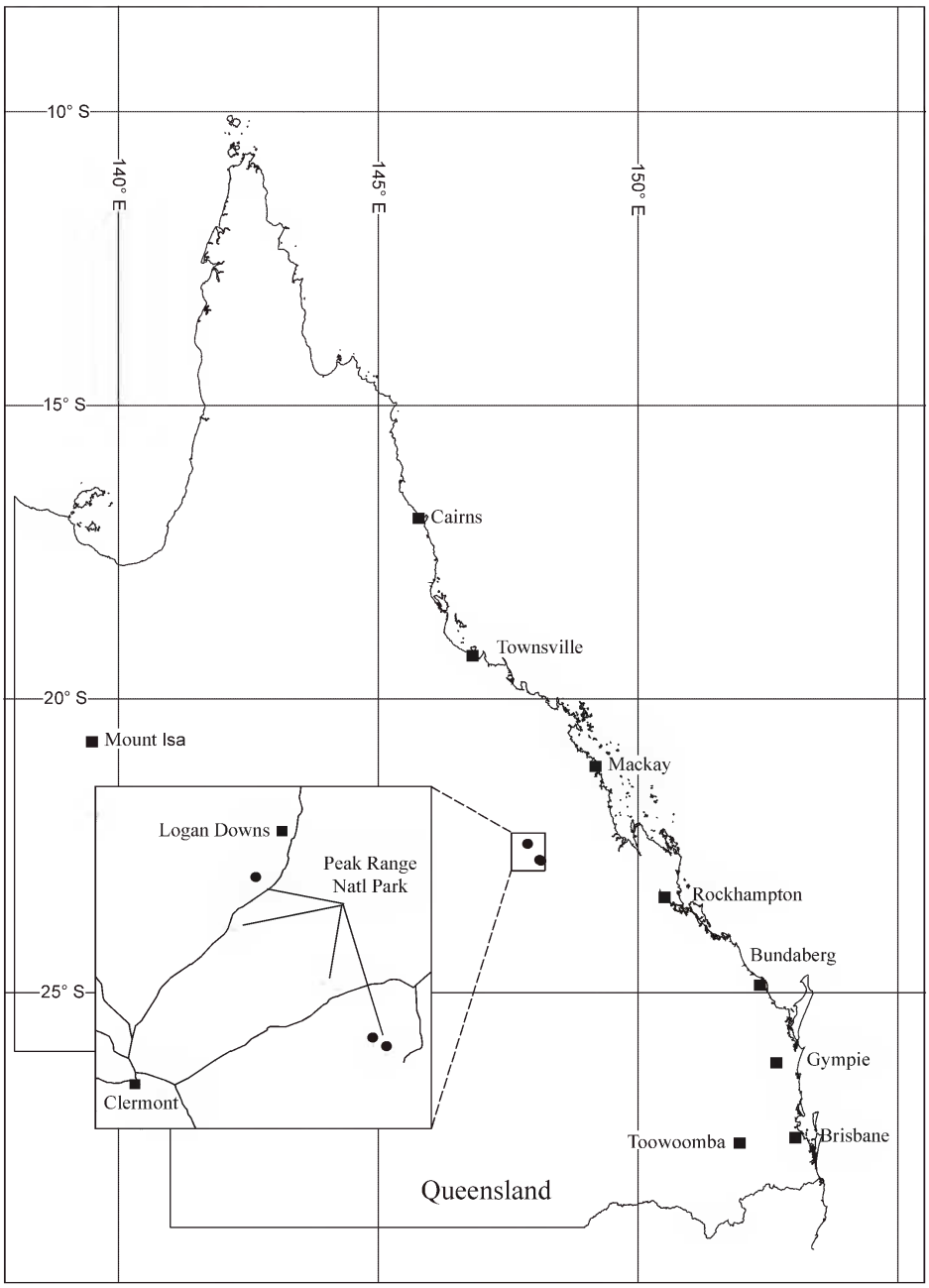

Map 1. Distribution of *Trioncinia patens* ● .